

Run II Organization, Resources, and Summary

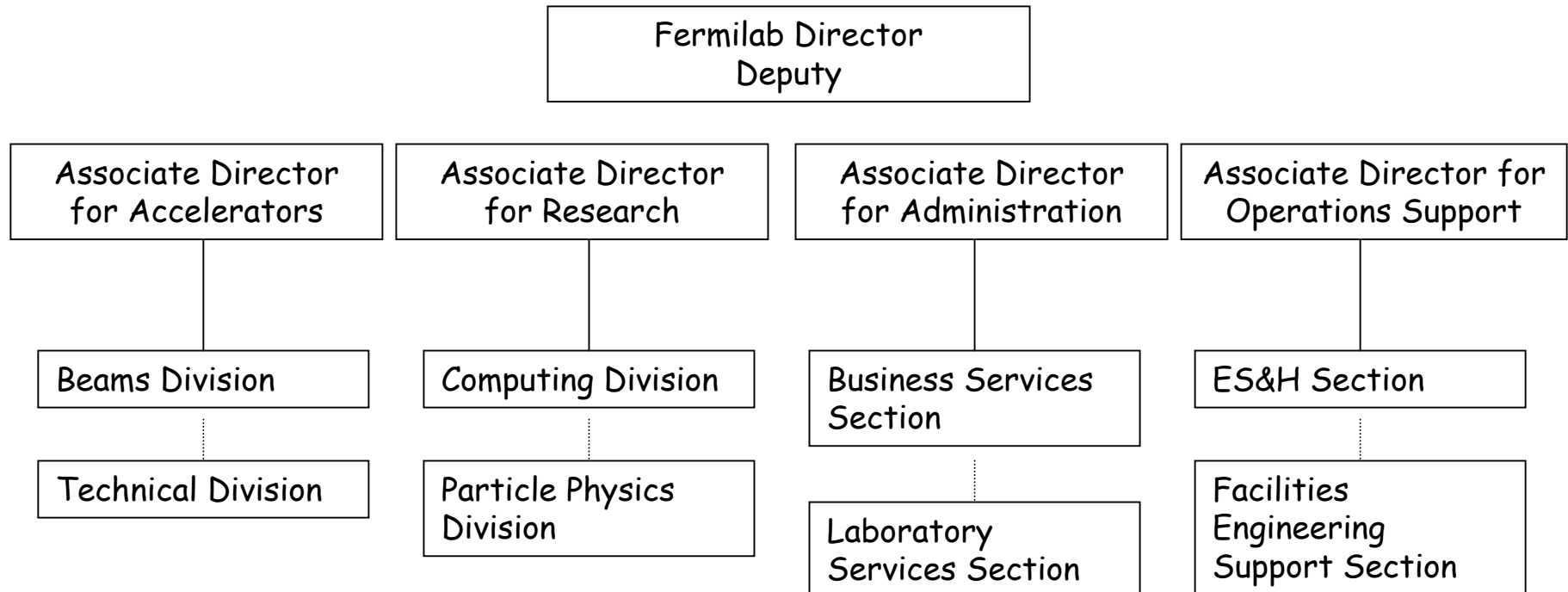
Steve Holmes

DOE Run II Review
October 29, 2002

Outline

- Fermilab Organization
- Run II Roles and Responsibilities
- Resources: Requirements and Management Strategy
- Help from Others
- Review Summary

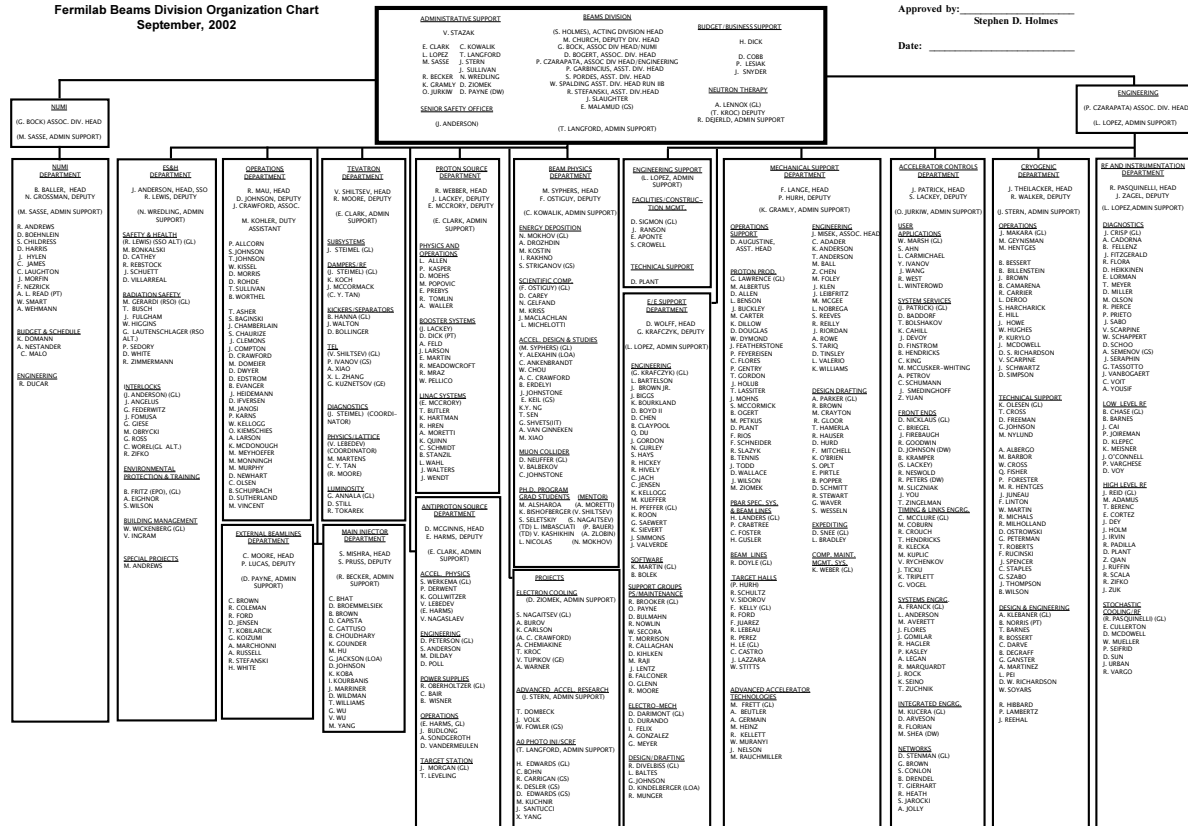
Fermilab Organization Chart



Fermilab Organization

Beams Division

Fermilab Beams Division Organization Chart
September 2002



Approved by: _____
Stephen D. Holmes

Date: _____

Run II Roles and Responsibilities

FY2003

- Successful execution of the Collider Run IIa Plan for FY2003 is the responsibility of the Fermilab Beams Division.
- The plan will be executed under the direction of the Beams Division Deputy Head serving in his capacity as Run IIa Project Leader.
 - Execution of the plan will be undertaken primarily by Beams Division personnel with significant assistance from personnel assigned in the Particle Physics, Technical, and Computing Divisions.
 - Continued assistance from personnel outside of Fermilab is expected.

Run II Roles and Responsibilities

FY2003

- The work is organized into a number of Level II projects. These projects are listed below along with the office holding responsibility for project definition and execution:
 - Proton Source - Proton Source Department Head
 - Antiproton Source - Antiproton Source Department Head
 - Main Injector - Main Injector Department Head
 - Tevatron - Tevatron Department Head
 - Recycler - Main Injector Department Head
 - Beam Transfers - Beam Transfer Coordinator
 - Shot Data Analysis - Shot Analysis Coordinator
 - Reliability - Beams Division Associate Head for Engineering
- All above indicated positions are currently filled. Overall coordination is provided by the Run IIa Project Leader.

Run II Roles and Responsibilities

FY2003

- Each level II project is broken down into a number of level III tasks. (The Recycler Project is further broken down into level IV projects.)
 - All level III/IV tasks have responsible persons identified at this time.
 - Responsible for identification of scope, determination of schedule and required resources, execution, and status reporting.
- All work included in the above described tasks has been captured in the resource loaded, linked, schedule.
 - This schedule will be used to monitor and plan the execution of work in support of Run II during FY2003.
 - Tracking is the responsibility of the Run IIa Project Leader

Run II Roles and Responsibilities

Beyond FY2003

- We are in the process of eliminating the distinction between Run IIa and IIb and managing as a continuous run.
- Run IIb Project Manager was appointed in September
 - Jeff Spalding has worked directly with the Deputy Division Head (Mike Church) and Dean Hoffer from the Director's Office/Project Management to produce the FY03 plan.
 - "Jeff's responsibilities include establishing a project organization that can define and execute a series of accelerator improvements that will allow us to achieve luminosities in the range of $2-4 \times 10^{32} \text{cm}^{-2} \text{sec}^{-1}$. Jeff has been asked to organize this work as an integrated project."
- Work on refining scope definition will start in November. Hope to have the comprehensive plan in place by spring.

Resources

Funding Requirements

- FY2003
 - Total M&S funding requirements in addition to routine maintenance are \$3.3M
 - All elements related to achieving FY03 performance goals can be supported within Beams Division budget. But...
 - Several elements required for further improvements in FY04 (i.e. BPM upgrades) are not supported.
 - Even so, Beams Division FY03 budget is still **\$1.8M out of balance** (and BD is being favored over the other divisions).
- Beyond FY2003
 - Total requirements for improvements beyond FY2003 are identified as roughly \$29M in the Run IIb Plan.
 - Roughly half of this is M&S, half salaries
 - Overall funding outlook for FY2004 and beyond is unclear, but initial indications are not reassuring.

Resources

Beams Division FY03 Budget (Preliminary)

Beams Division FY03 M&S Minimal Needs			
Includes Operations, R&D, Capital Equipment, and AIP			
(Dollar Amounts in Millions)			
Accelerator Operations and Maintenance		\$15.7	62%
Run II Improvements		\$4.3	17%
LHC		\$0.0	0%
120 GeV Fixed Target		\$0.7	3%
Neutrino Program (NuMI + MiniBoone)		\$0.9	4%
Future Accelerator R&D		\$0.6	2%
Infrastructure and Administrative Burden		\$3.0	12%
TOTAL		\$25.2	100%
AVAILABLE FUNDING		\$23.4	
FY03 BUDGET SHORTFALL		(\$1.8)	9%

Resources

Requirements and Strategy

- All staff required to execute the FY2003 Run II plan exist and are identified.
 - However, assessment of staffing needs this summer identified ~12 new people to support Run II + NuMI + MiniBoone goals
- Resource loaded schedule identifies roll-off of personnel starting in May, 2003.
- These folks will represent the build up in support of Run II performance enhancements beyond FY03.
- Primary longer term projects that will have effort invested in FY2003 are:
 - Electron cooling
 - Slip Stacking
 - Beam-beam compensation
 - Antiproton aperture and target station improvements

Help from Others

Inside the lab

- We are fielding many offers of help, both from within and from outside the laboratory. Effective integration requires:
 - Three-fold match of capabilities, need, and internal contact
 - Case-by-case facilitation
 - We are effectively integrating resources from within the laboratory, but outside the Beams Division
 - PPD: Assistance on instrumentation projects, Recycler vacuum. Transfer of the PPD deputy head and former CDF silicon project manager to BD. Technician support for shutdowns.
 - CD: Shot Data Analysis and instrumentation projects. Applications programming support.
 - TD: Component fabrication, magnetic field monitoring, time dependent currents, instrumentation projects, Recycler planning. Technician support for shutdowns.
 - ~50 people total, 20-25 FTEs
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Help from Others

Outside the Lab

- And outside the laboratory a number of things are happening or are in the works:
 - SLAC: Accelerator simulations and instrumentation
 - LBNL: Visits aimed at identifying areas of participation
 - ANL: Tevatron vacuum and Booster instabilities
 - BNL: Personnel visits (Tevatron acceleration and IR issues)
 - CERN: Personnel visits
 - Exchange of letters formalizing a collaboration and projecting Fermilab participation in LHC commissioning.
 - Maryland: accelerator modeling (Recycler)

Summary

Collider Run II is the most important activity we are engaged in at Fermilab, and we are committed to its success.

- We have organized an effective and systematic approach to Run II performance issues identified during initial operations.
⇒ **Factor of 4 improvement since January 1, 2002**
- We have developed a detailed plan for FY2003.
 - Resources and organization exist to execute this plan
 - Will lead to a factor of x2.5 improvement in performance relative to FY2002.
 - Will achieve level of performance promised in the Main Injector Construction Project Data Sheets.

Summary

- We have an understanding of the issues that have to be overcome in order to go beyond, and a suite of improvements to address these issues.
 - Run IIa + Run IIb = Run II
 - A more detailed plan for Run II will evolve over the next 6-9 months using the FY03 plan as a starting point. Of necessity the plan will be better defined in the earlier years, and must retain flexibility for response to our evolving understanding of performance issues and results of R&D programs.
- Based on our current understanding, a reasonable expectation for integrated luminosity through FY2008 lies somewhere in the range 6-11 fb⁻¹.
 - Assumes success in several R&D endeavors
 - Assumes adequate financial support
- We hope the committee agrees